

Notice of Allowability

Application No.

10/766,273

Examiner

Julie-Huyen L. Ngo

Applicant(s)

KOMITOV ET AL.

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 8/31/05 & 9/28/05.
2. ☒ The allowed claim(s) is/are 1-12 and 25-33.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 8/31/05 & 9/28/05
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Julie-Huyen L. Ngo
Examiner
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EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Mr. Robert M. Sieg gave authorization for this examiner's amendment in a telephone interview on September 27, 2005.

The application has been amended as follows:

Claims:

Claims 13-24 have been canceled.

Claim 25 has been amended as follow:

"25. An electro-optic device comprising:
a liquid crystal cell having first and second spaced-apart surfaces defining a gap;
at least one electrode arranged to selectively electrically bias the liquid crystal cell;
a chiral or cholesteric liquid crystal disposed in the liquid crystal cell, the liquid crystal having an optic axis substantially along a selected optic axis direction in the absence of an electrical bias; and
a polymeric network disposed at an inside surface of the liquid crystal cell, the polymeric network extending partway into the liquid crystal cell leaving at least a portion of the liquid crystal cell substantially free of the polymeric network, wherein the polymeric network is inhomogeneous and has a higher density near one or both of the first and second spaced-apart surfaces compared with a density in a middle of the gap."

New claims 27-33 have been added as follow:

27. The electro-optic device as set forth in claim 25, wherein the polymeric network has a higher density near each surface and a lower density near the center of the gap.

28. The electro-optic device as set forth in claim 25, wherein the gap has a width greater than two microns, and the polymeric network comprises:

a first portion extending from the first surface less than or about one micron into the gap.

29. The electro-optic device as set forth in claim 28, wherein the polymeric network further comprises:

a second portion extending from the second surface less than or about one micron into the gap.

30. The electro-optic device as set forth in claim 25, wherein the polymeric network comprises:

a first portion adjacent the first surface, the first portion having a density profile corresponding to an ultraviolet light intensity profile of ultraviolet light illuminating the gap from outside the first surface; and

a second portion adjacent the second surface, the second portion having a density profile corresponding to an ultraviolet light intensity profile of ultraviolet light illuminating the gap from outside the second surface.

31. The electro-optic device as set forth in claim 25, wherein the polymeric network is less than or about 3 weight percent of the liquid crystal material.

32. The electro-optic device as set forth in claim 31, wherein the chiral or cholesteric liquid crystal has a helix pitch less than about 0.5 micron.

33. The electro-optic device as set forth in claim 25, wherein at least one of the first and second spaced-apart surfaces includes an anisotropic surface that biases molecules of the liquid

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crystal material adjacent said surface toward a selected alignment.

DETAILED ACTION

Allowable Subject Matter

Claims 1-12 and 25-33 are allowed.

Reasons for Allowance

Claims 1-12 and 25-33 are allowable because there is no prior art of record that either teaches or suggests an electro-optic device comprising the following specific limitation recited in claims 1 and 25:

a chiral or cholesteric liquid crystal material disposed in a gap; and
an inhomogeneous polymeric network disposed in the gap and having a
higher density near one or both of the first and second spaced-apart surfaces
compared with a density in a middle of the gap

Conclusion

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Sadeg M. Faris (US 6912018 B2) disclose an electro-optical glazing structures having total-reflection and transparent modes of operation for use in dynamical control of electromagnetic radiation.

Lavrentovich et al (US 6897915 B1) disclose a non-lithographic photo-induced patterning of polymers from liquid crystal solvents with spatially modulated director fields.

Sato et al (US 6652776 B2) disclose a liquid crystal device, mesomorphic functional material and liquid crystal apparatus.

Contact Information

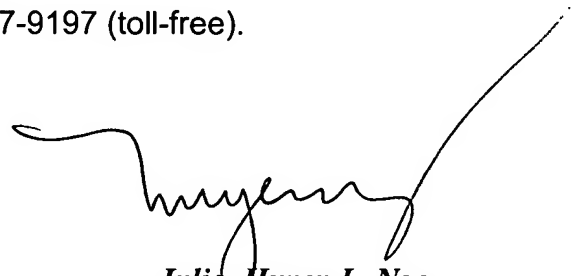
Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Julie-Huyen L. Ngo whose telephone number is (571) 272-2295. The Examiner can normally be reached on T-Friday.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's Supervisor, Mr. Robert H. Kim can be reached at (571) 272-2293.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1562.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

September 27, 2005



Julie-Huyen L. Ngo
Patent Examiner
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